Web Sites That Work!!!

The Role of Evaluation at DTIC

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The Defense Technical Information Center (DTIC), an element of the Defense Information Systems Agency (DISA), is the central Department of Defense facility for providing access to and facilitating the exchange of mission-related Defense information, and a primary provider of Information Technology support to upper-echelon DoD component organizations.

Web Sites that Work

- Reason for being -- clear mission -- focus
- Defined User community -- public, domain...
- Senior management commitment
- Defined decision makers/focal point
- Dedicated staff
- Competent technical support
- Content - logical organization/searchable
- Consistent look and feel
- Adherence to standards
- Metrics

DTIC WWW Communities

User Communities

- DoD
- Intel

Community

- US Government
- Contractors
- Education
- Media
- US Public
- International

Weekly Activity

- 8,221,347 Accesses
- 392,140 Unique visitors
- 458,155 MB data delivered

January 2001

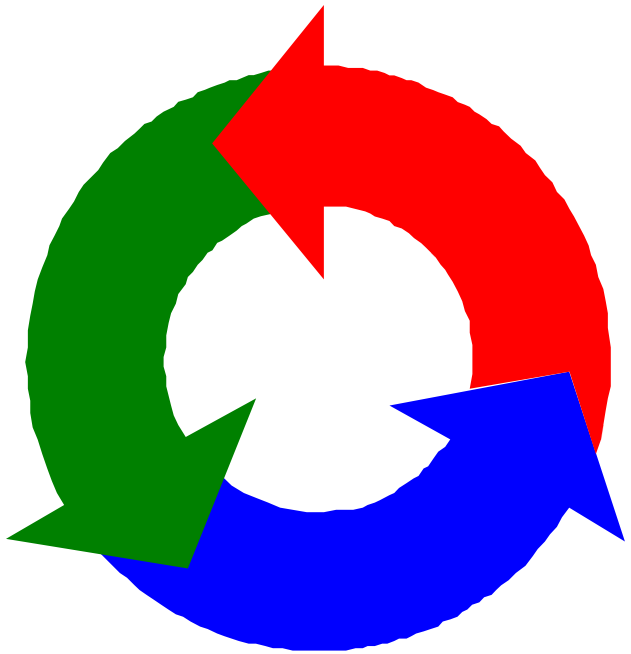
- 8 Separate Web Servers
- 90 Primary Web Sites
- 7 X 24 Operation
- Public Access
- Limited Access

DTIC WWW Services

Services Provided	Example Sites
• Static Web Pages • Dynamic Web Pages • Libraries • Comment Forms • Collaborative Tools • Document Review & Coordination • Multimedia (live broadcasts, audio, video) • Full Text Search • Relational Databases	• DefenseLINK • JCSLink • Air Force Link • GulfLINK • S&T InfoWeb • Early Bird • Critical Infrastructure • Comptroller • Personnel & Readiness

Partnerships for Innovative Information Technologies

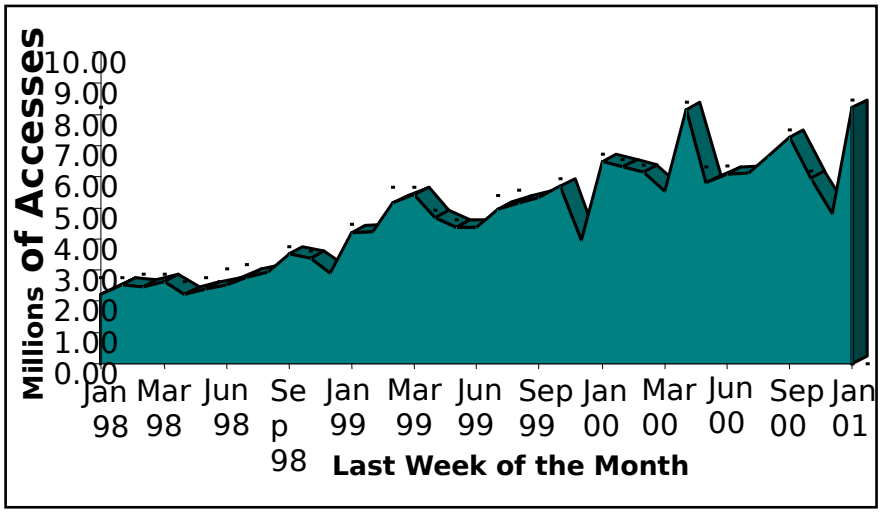
- **Content Creators**
  - Information content
  - Communities of interest



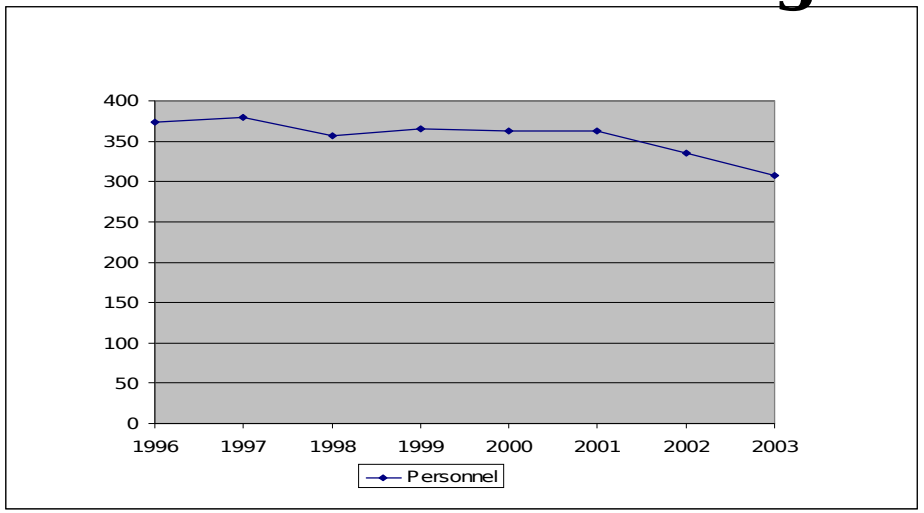
- **DTIC Web Support Team**
  - Human/Systems Interface
  - Graphic Design and Layout
  - Integration with client environmen
  - Site Design
  - Automated Processes
  - Search Tools
  - Reuse and Shared Resources
  - Technical Advice and Guidance
  - Leverage infrastructure investmen

Resources

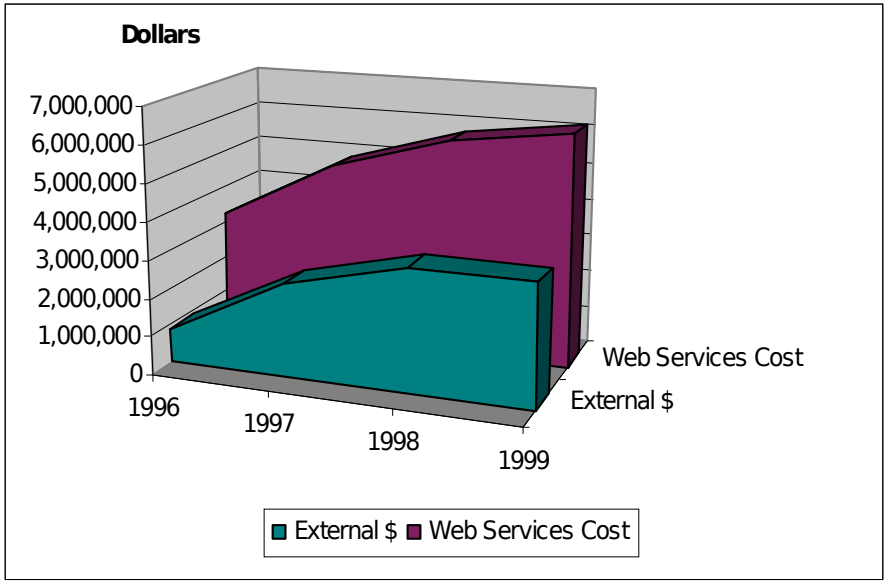
Web Usage



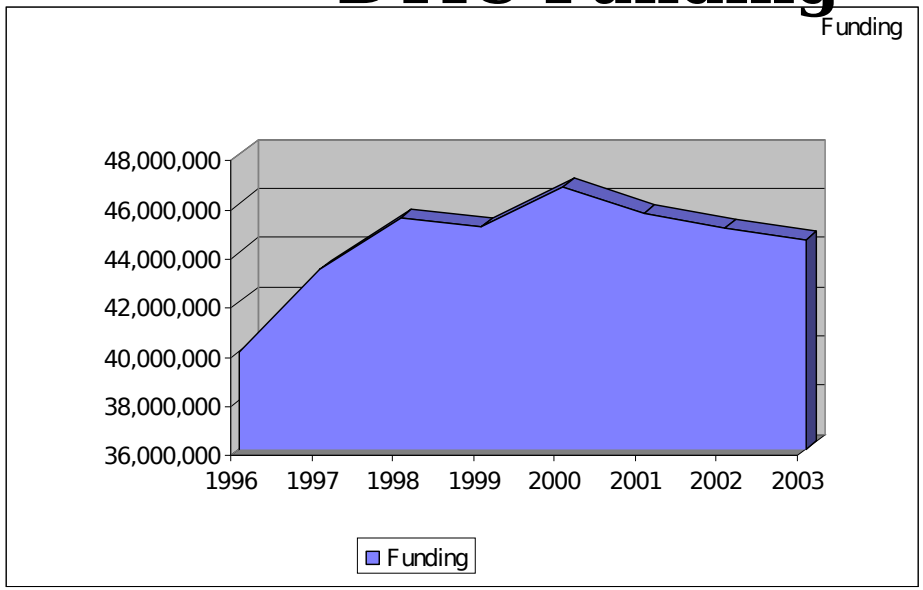
DTIC Staffing



Web Costs



DTIC Funding



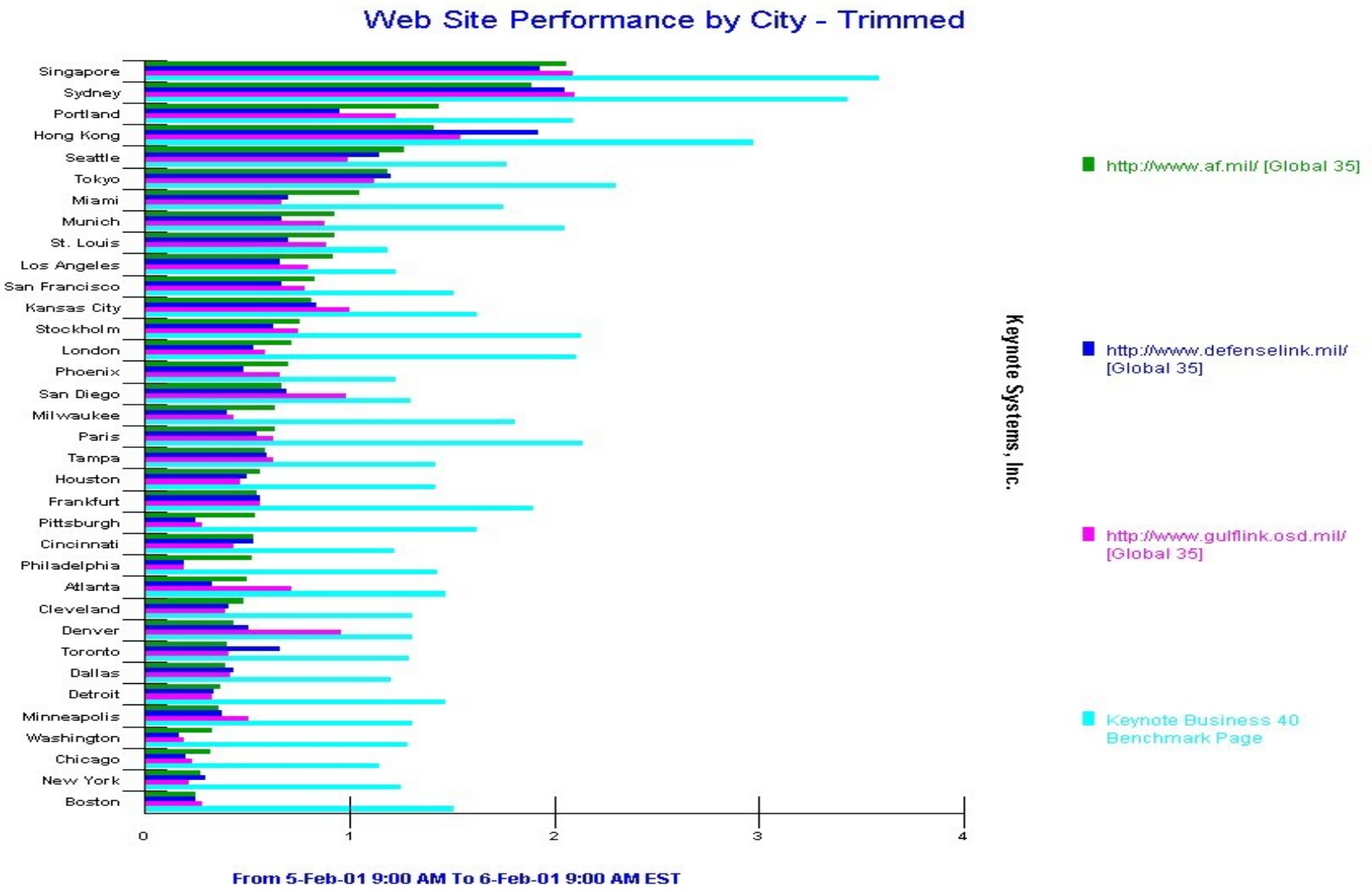
Web Site Management
Practical Issues and Concerns

- Network Response Times
- Network Bandwidth
- Systems Availability
- External Evaluations
- Direct Customer Feedback
- Web Server Statistics
- Privacy of Users
- Security, security, security…
- What Next?

Monitoring Network Response

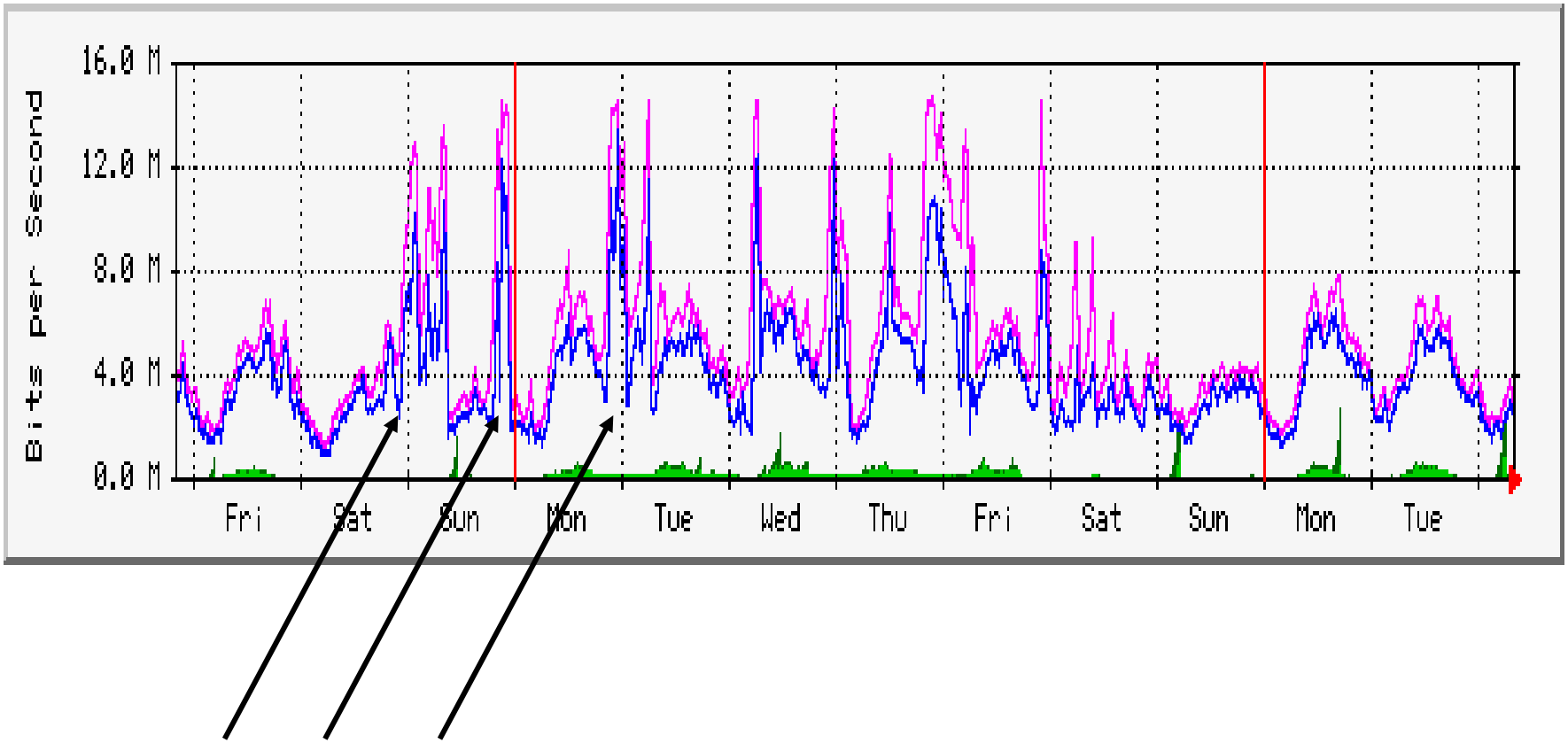
- Compare response times to other sites
- Diagnose performance problems
  - Transient or permanent
  - Localize problems
    - server
    - access provider
    - users' geographic locations
- Measuring Quality of Service
  - Performance and availability
  - Commercial Product **KEYNOTE**

Web Site Performance by Metro Area



Monitoring Network Bandwidth

Bits Per Second



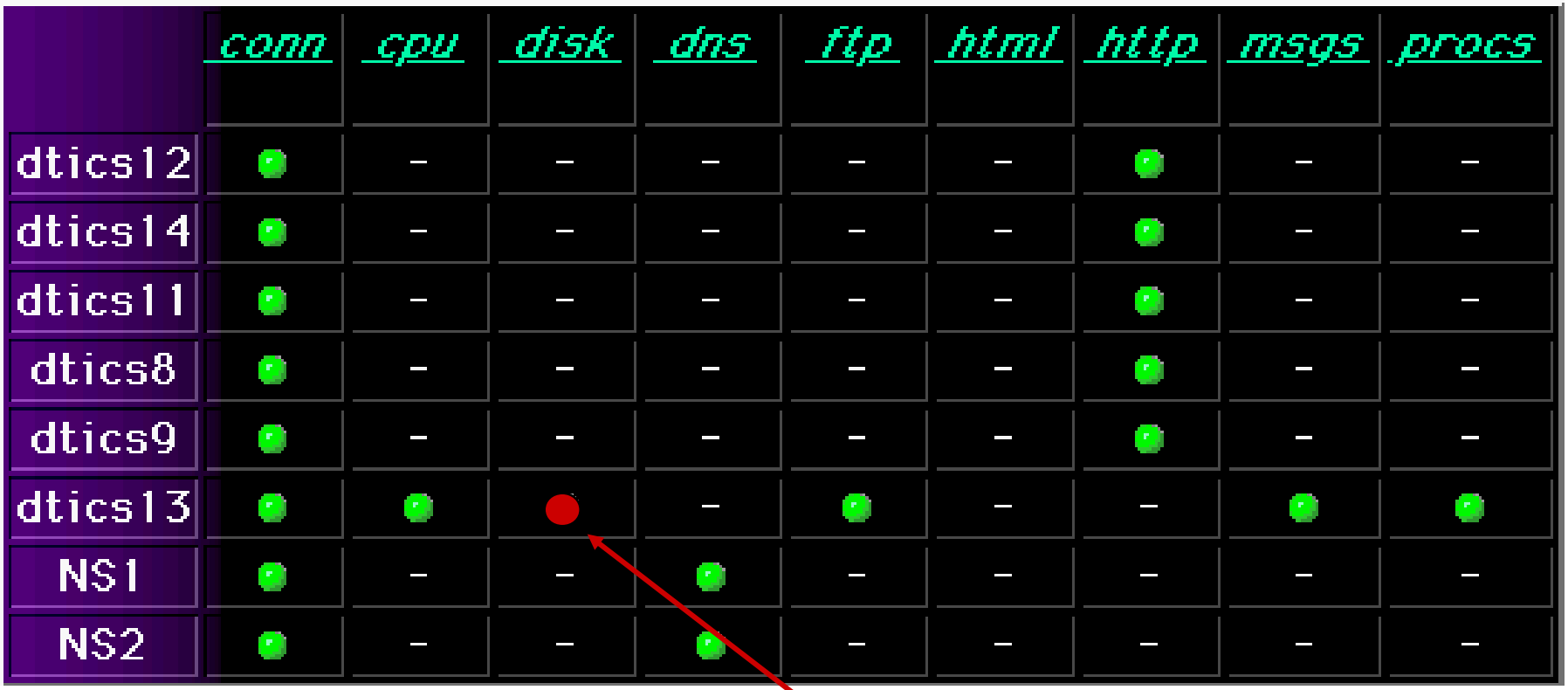
Web Spiders at work!

T1 = 1,600 K
15Mb =15,000 K

Monitoring Systems Availability

Big Brother

Monitoring and Notification for Systems and Networks



Web Display

Email and Pager Notification

External Heuristic Evaluation

Nielsen guidelines for interface usability:

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognize, diagnose, and recover

Goal is to cite violations of usability guide

External Heuristic Evaluation

Results:

OUCH!!

- Information did not flow in any obvious order but seemed scattered.
- There was an excessive use of animation throughout the site.
- The addition of color may make the page more aesthetically pleasing.
- Icons did not always represent same action.
- Navigation skipped levels in a hierarchy returning the user to the home page for no obvious reason.

Specific recommendations to improve site were made by the

External Usability Study

- How well can users accomplish tasks site designers have in mind
- Subjects completed 10 tasks
  - Required searching for information
  - Questions representative site users interests
    - What time does the first walk-in tour of the Pentagon start?
    - How often is DefenseLINK News Updated?
    - What organization publishes personnel statistics for the DoD?

External Usability Study

- Multiple systems and browers types used
- Braille reader needed by one subject
- Time limits for tasks
- Subjects were observed
  - Response times recorded
  - Asked to think out loud
    - Reasoning behind actions
    - Frustrations voiced

External Usability Study

Sample Feedback:

- Subjects found the search feature "frustrating" and "useless"
  - unable to understand the search results
  - unsure of whether the search completed was an **AND** search or an **OR** search when more than one word was entered
  - dreaded performing any task requiring the search engine

Time for a redesign!

Direct Customer Interaction

- Establish Memoranda of Understanding
  - Defines responsibilities
  - Web Policy, Guidelines and Best Practices
  - Establishes processes
  - Renew annually
- Listen to customers, users and staff
- Monitor email traffic

Listen, listen, listen...

Web Server Summary Statistics

AirForceLINK responded to a total of 2,358,841 html page requests
(Note: this number excludes all graphics, images, and icons files)

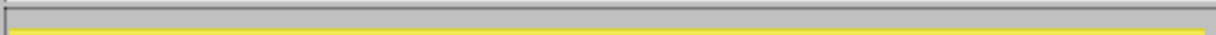
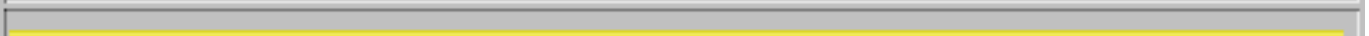
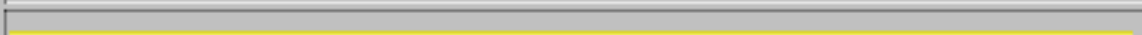
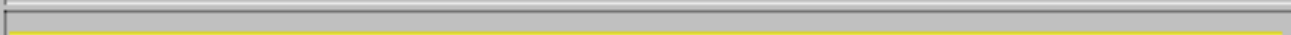
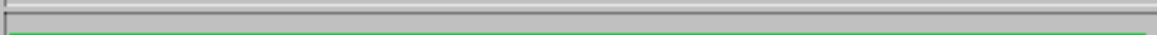
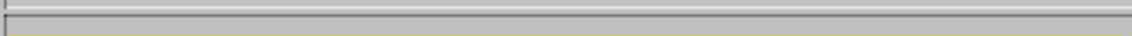
AirForceLINK (Total Server Usage) was accessed from:

149,046 unique hosts.
2,350,920 (99.7%) were from external hosts.
7,908,540 files of all types (html, gif, jpg, etc.) were request
127,010 errors in completing user requests,
110,794.51 megabytes of information were passed to users.
140,40.7 html pages per hour.
336,977 html pages each day.(Average estimate)

Web Server Summary Statistics

Server Usage for all DTIC Servers

Summary Statistics (External Accesses)

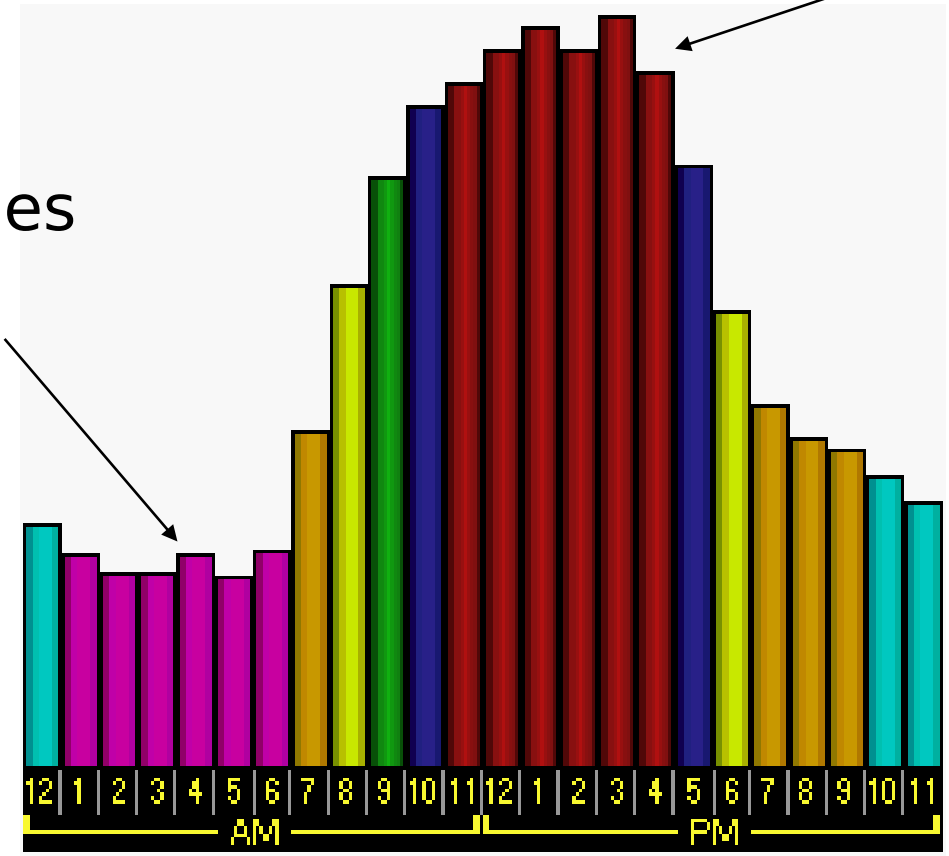
Date	Accesses	Relative Ranking
		0 — 4110673 — 8221347
02/04/2001	7380275	
01/28/2001	8221347	
01/21/2001	6924755	
01/14/2001	7847683	
01/07/2001	7014269	
12/31/2000	4805915	
12/24/2000	6858556	

Web Server Summary Statistics

Average Hourly Statistics

24,174 pages

7,252 pages



Around the clock service!

Frequently Requested Pages

	# of successfull hits	% of total
/	147888	18.12
/news/	52173	6.39
/cgi-bin/multigate/search	36324	4.45
/specials/kosovo/	22221	2.72
/photos/	13939	1.71
/pubs/	10150	1.24

Accesses by Domain

Domain	Description	Count	% of total
com	US Commercial	208461	25.54
ip address	unresolved	161813	19.83
net	Network	114655	14.05
af.mil	U.S Air Force	73073	8.95
navy.mil	U.S Navy	30197	3.70

Most Frequent Accesses by Host

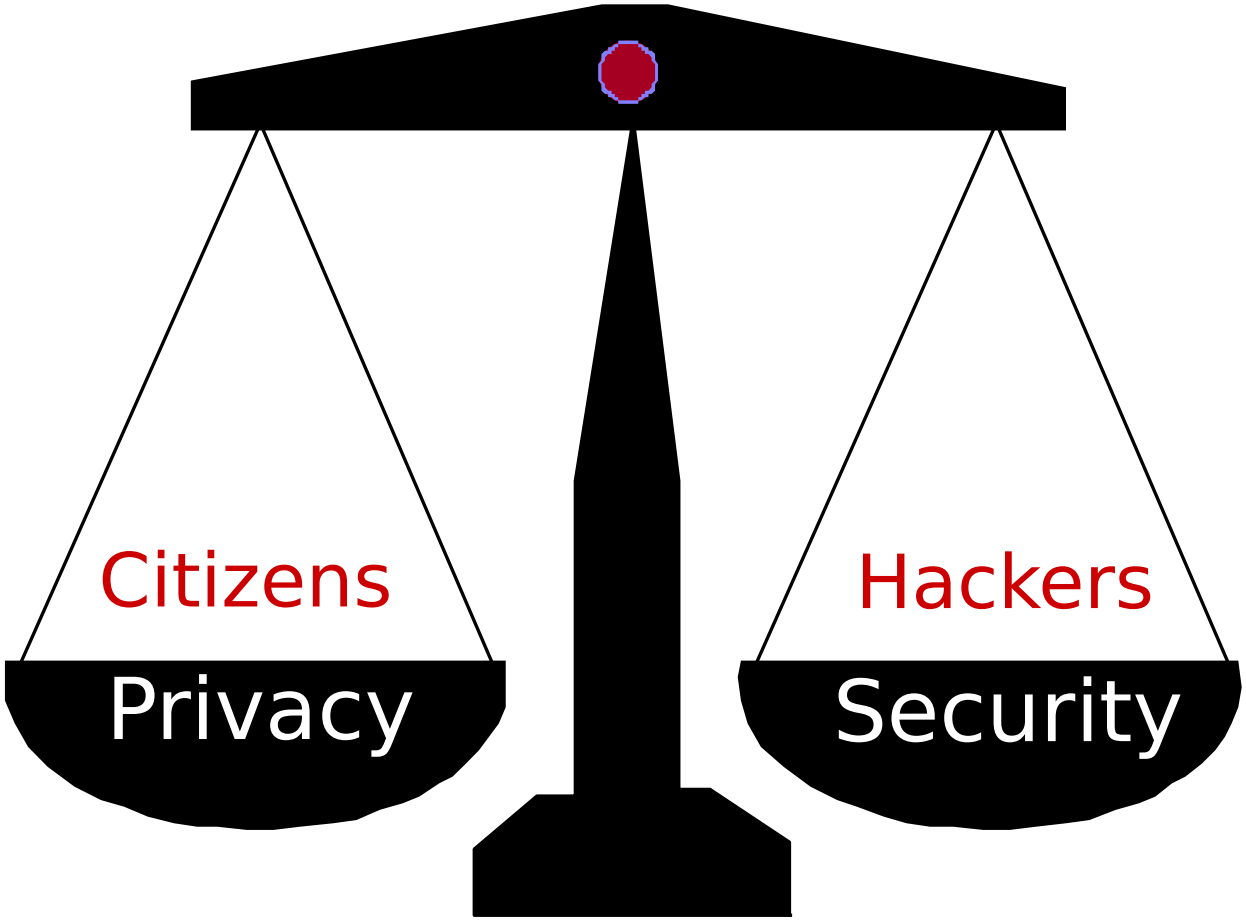
	Count	% of total
aoluser.proxy.aol.com	28394	3.48
gateway.fultech.com	21089	2.58
mercator.pa-x.dec.com	13742	1.68
isn-lase.ethz.ch	12744	1.56

Web Server Summary Statistics

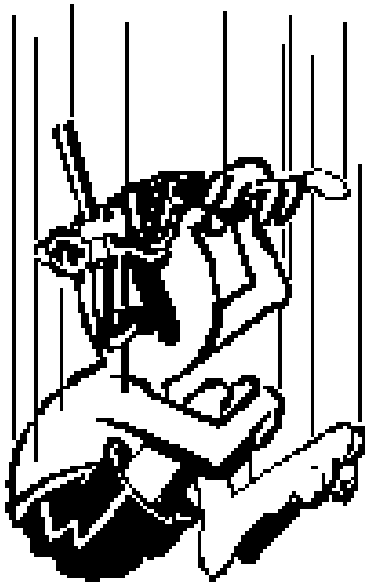
Browser	Name/Description	Count	Percent
MSIE 5.X	Microsoft Internet Explorer	281255	34.5
Mozilla 4.X	Netscape	209836	25.7
MSIE 3.X	Microsoft Internet Explorer	56194	6.9
MSIE 5.X	Microsoft Internet Explorer	56164	6.9
Mozilla 3.X	Netscape	37291	4.6

User Capability

Privacy and Security
The Balancing Act



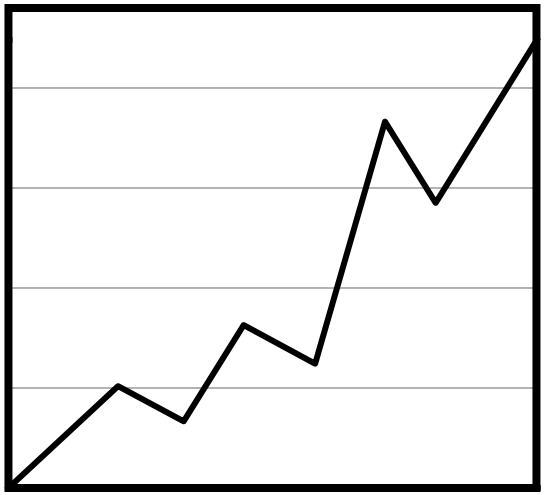
Taking on the Privacy Issue



DTIC met with DoD, DoJ and OMB to address privacy and web logs

"Anecdotal evidence suggest the collection of session information poses privacy concerns to WWW site visitors. This concern is appropriate as over time the accumulation of this data can reveal a visitor's personal preferences and particular interests. Release of this information could have a chilling effect on citizens' perceptions of the role the Government plays in monitoring the distribution of Government information."

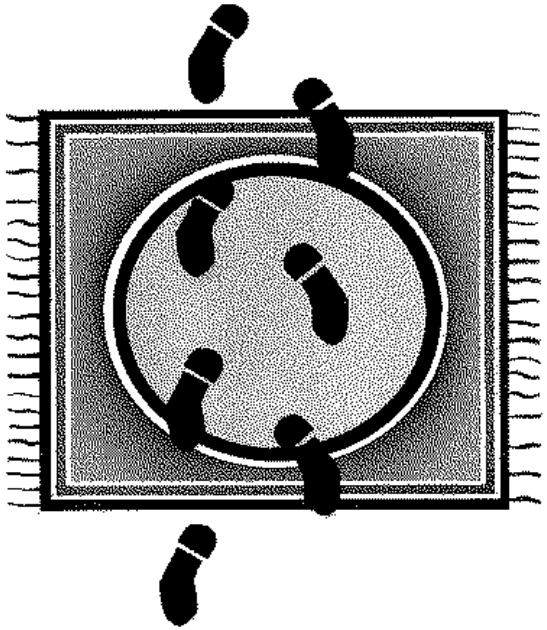
Privacy and Security Notice



For **site management**, information is collected for statistical purposes. This government computer system uses software programs to create **summary statistics**, which are used for such purposes as assessing what information is of most and least interest, determining technical design specifications, and identifying system performance or problem areas.

Privacy and Security Notice

For **site security** purposes and to ensure that this service remains available to all users, this government computer system employs software programs to **monitor network traffic** to identify unauthorized attempts to upload or change information, or otherwise cause damage.



Privacy - To Cookie or Not to Cookie

Session cookies (expires when browser is shut down)

- Session cookies are OK

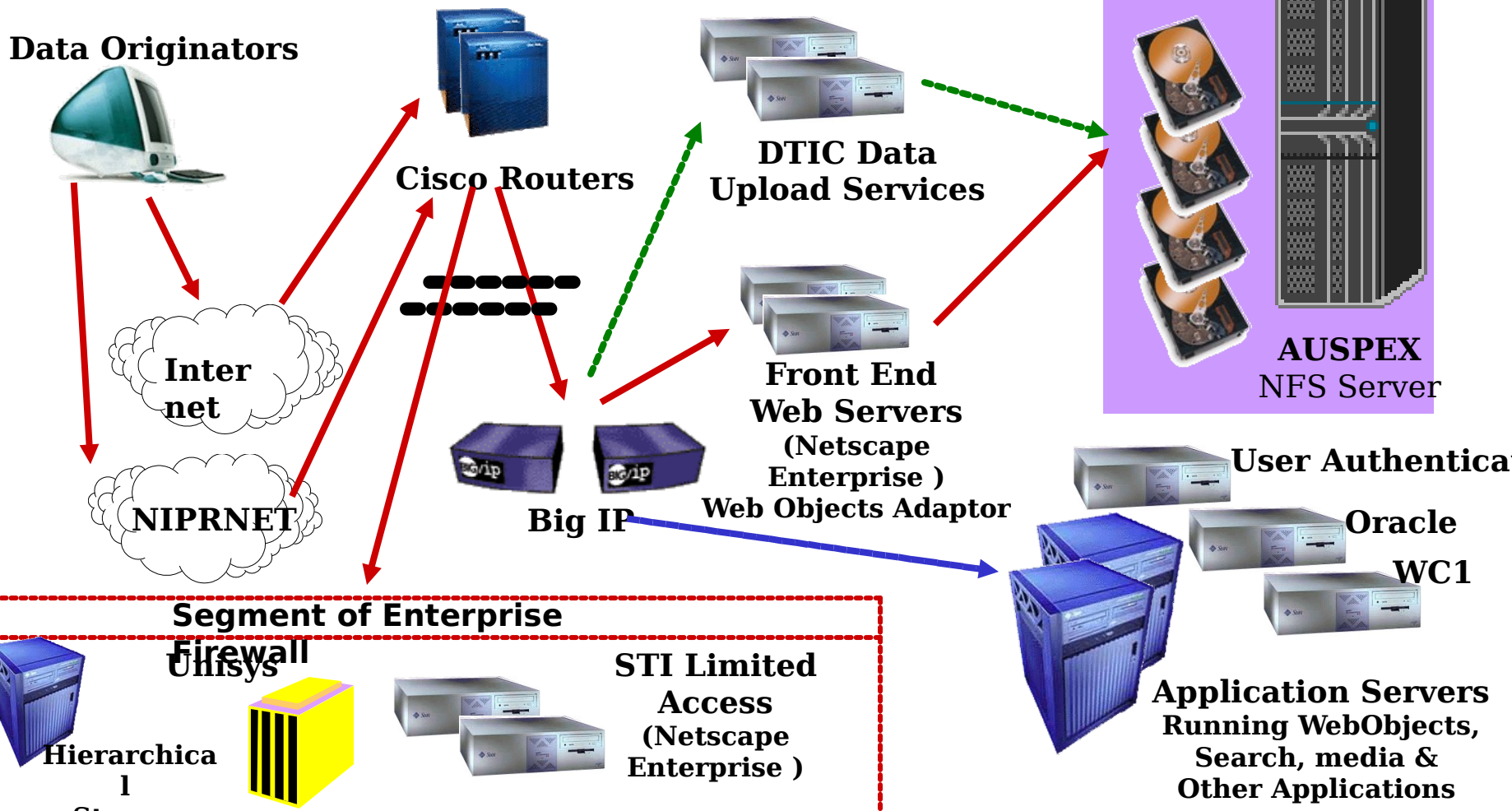
Persistent cookies (persists to the next browser session)

- Clear and conspicuous notice
- Compelling need
- Appropriate safeguards for protecting stored data
- Approval of the agency's top official

http://ocio.os.doi.gov/cio_offi/Documents.htm#sec

Architectural Overview

Security is a primary driver in Network architecture. Content delivery and access are segregated. Application software is segregated on separate servers.



Customized Information Portal

http://www.af.mil

Lessons Learned

- Balance service with security
- Practice risk management not risk avoidance
- Ensure user privacy
- Be skeptical of vendor promises
- Educate Staff/Customers
- Seek sufficient funding
- Best Practices are changing
- Establish reasonable metrics